Ontario
fish and wildlife
Review

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Ontario
# fish and wildlife
Review

Vol. 12, No. 3-4 Fall-Winter, 1973

Good. Author Kirk Reed reports progress in establishment of sharp-tail populations. See photos, centre spread.

Hopeful. John Macfie returns to the Review to describe how Parry Sound District sustains deer beyond the snow barrier.

Fresh. Diarist Don Price and Author Al Wainio measure coho fresh from the Credit. Al shows Richard Popko with average salmon on back cover.

Timely. Author Bill Creighton explains how to landscape for birds. Cover photo of Bohemian waxwings in Russian olive by Del Benson, extension biologist in Wildlife Branch.

CONTENTS PAGE

Backyards for Birds ... 3
by Wm. A. Creighton

How to Trap Sharp-Tailed Grouse ... 9
by Kirk J. Reed

Breaking the Snow Barrier ... 17
by John Macfie

The Diary of a Salmon Weir ... 21
by A. A. Wainio

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The goal of the Ministry of Natural Resources is to provide opportunities for outdoor recreation and resource development for the continuous social and economic benefit of the people of Ontario, and to administer, protect and conserve public lands and waters.

Ontario

Ministry of
Natural
Resources

Hon. Leo Bernier,
Minister

Dr. J. K. Reynolds,
Deputy Minister

Evolution and Sandpaper

EVOLUTION is an inevitable process to which individuals and organizations must submit. And so the old Department of Lands and Forests became involved in the inevitable. It was comfortable, no doubt, as old things often are. Comfortable because it was well known, comfortable because it had grown up with us. Faced thus with an old government department, what do we do? . . . Replace it?

Do we replace something in its entirety if much of it is good and proven in the forge of time? Do we not alter and strengthen it to make it more efficient, more responsive so it can do what it should do?

Not often does an organism or an organization in its evolution receive the opportunity to influence its own change. But what, indeed, more logical than to give a thing in being the opportunity to assess its own deficiencies, view them in a clear, objective light and having done so, plot a course toward a more efficient status. A more-efficient, more-responsive being attuned to modern needs.

Modern needs? So what's so modern about the oldest thing on earth — the use of natural resources? The speed and distance that modern society moves is what is new. And the expanding number of people with expanding needs and expanding leisure and expanding affluence and expanding environmental stresses, and the very, very, very finite limitations of the natural resources. That is what's new about the use of natural resources!

And so an evolutionary reorganization came. It came with us and by us, and we were and are concurrently the architects, the builders, the occupants and the critics of this structure we call the Ministry of Natural Resources.

So, here we are, in an old and proven frame, much modified, with a responsive capacity not previously possible.

Not to suggest that the process is final and complete. Nor can it ever be. As the whole world continues to evolve, so must we. No structure was ever built that did not have rough edges to be sanded off. No organization was ever created that did not eventually require additions, subtractions, mutations. But the strength and beauty of this structure is not only that we had the making of it, but that through its very design we can yet influence its refinement.

A need for change? Say what! Say how! Accept responsibility, express opinion, be part of the sandpaper.

This new Ministry of Natural Resources is us and yours. With and by us, it continues to evolve. Assist it to evolve. Evolve with it. Evolve for it. Be part of the sandpaper.

—CARMAN W. DOUGLAS
Regional Biologist
Algonquin Region (Huntsville)

Rambling ground cover of bittersweet in foreground. Trees such as hawthorn and pine, and grassy openings, set the stage to attract wildlife to the property.

Backyard corners of multifora rose, wild grape, viburnums, corn and sunflower provide the habitats needed by a variety of wildlife species.

BACKYARDS FOR BIRDS

Report and Photos by Wm. A. Creighton
Fish and Wildlife Supervisor, Maple District

IF you take pleasure from watching birds close at hand through your kitchen window or from the comfort of your family room, why not use some of the many methods of attracting wildlife to your property? Why not landscape for wildlife as well as aesthetics by planting trees, shrubs, vines and ground cover attractive to birds?

These days more of us are living in urban settings devoid of a variety of wildlife, except perhaps for the ever-present starlings and house sparrows. Our private homes and apartment dwellings stand on land that was once the home of open field and hedgerow species such as killdeer, meadowlarks, bobolinks and field sparrows.

If your backyard can provide sunlight and shade, cover and food, water and safety, then you have the essentials for attracting a diversity of bird species. To establish the necessary habitat, selective plantings should be made close to where you wish to see wildlife — yet not close enough to block your view when the trees or shrubs mature.

Shrub and tree plantings are made to form clumps, thickets or hedgerows as shelter and foraging locations for birds. Dense foliage is necessary, both for protection from storms and as cover for concealment. Depending on the vegetation planted, it will take from three to five years before you will notice any marked increase in numbers and species of birds frequenting your property — if you are living in a new subdivision.

In older sections of town where mature shade trees exist, the addition of thickets and vigorous growths of herbs, vines and shrubs will be attractive to birds within two to three years after planting.

While it is possible to develop a haven for wildlife on your own property without neighbourly participation, your project will be more successful if the properties behind and on either side of you are involved.

To hold birds, whether in the old or new part of town, the urban habitat as a whole must be satisfactory, but it is safe to say that food is the most important single offering that can be made. Insects and their larvae, which in summer are the principal food of many birds, and almost the sole subsistence of most nestlings, are usually abundant on well-landscaped premises.

Fall and winter are times of food scarcity for most wildlife species. Each bird species has certain food preferences. Some like soft berries, while others prefer hard seeds. It is important in planning to select several trees and shrubs which will develop fruits that persist through the winter.

At other times of the year, an important consideration is an over-lapping of several species so that the area will continually produce new flowers and fruits as the old ones disappear.

Here are some practices to use on your property. Not all of these need to be tried, but you should strive for a combination of trees, shrubs, vines and ground cover that will provide food and shelter at critical seasons of the year, open space and thicket, and sunlight and shade.

SELECTION OF PLANTS

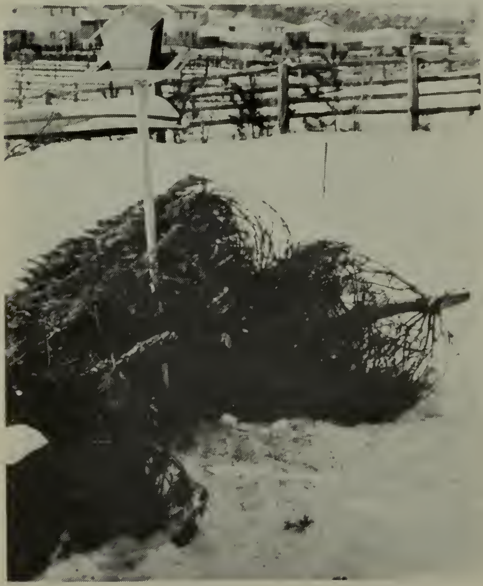
The first step is to select tree and shrub species suitable to the climate, soil and other environmental conditions where you live.

SITE PREPARATION

Good site preparation is essential. Well aerated and enriched soil is desirable for the successful growth of most plants. For best results, consult your local nurseryman or other authority in the fall on preparations for the next spring planting season. For example, if a hedgerow is required, roto-till or dig a minimum ten-foot-wide section by whatever length is desired. Then

A bluejay enjoys sunflower seeds.

A pine grosbeak feeds on apples.



Old Christmas trees provide shelter below winter feeding station.

work in manure. A double row of shrubs or everygreens is recommended with plants spaced six feet apart in the row and the rows four feet apart. Stagger plants in the rows for maximum shelter.

For clump plantings, scalp the sod and allow a space of one square foot for each plant. Space the plants four to six feet apart, with evergreens in the centre and shrubs ringing the outside of the cluster.

TIME OF PLANTING

The best time for planting is the early spring after the frost is out of the ground. Fall planting can be done successfully only in light, open soils after planting stock have dropped their leaves.

CARE AFTER PLANTING

The establishment and development of tree and shrub plantings will be more rapid with proper care. Till the soil on both sides of the hedgerow and trim the grass in clump plantings once or twice a year, for two to three years after planting. Shrubs or trees lost to animal damage or winter kill should be replaced to maintain a full, healthy hedgerow or thicket. Shrubs or trees may be fertilized to speed their growth, but this practice should only be followed in combination with cultivation or mulching to reduce weed growth. Mulching with wood chips, sawdust, straw or strawy manure is a common treatment to conserve moisture and reduce weed and grass growth.

CONIFER TREES

Evergreens are essential for a well balanced planting program. In winter, they are almost indispensable in attracting birds, such as jays and crossbills, as they offer food to some extent as well as protection from wind and cold.

Choose your conifers from a selection of red, white or scotch pine, white or red cedar, Norway or white spruce, and hemlock. Red cedar is only recommended if your area does not contain apple trees, crab apple trees or apple orchards close enough to be affected by cedar-apple rust.

Planted in clumps of three to five trees, six feet apart, on the border of your property, conifers will protect wildlife and serve as a dark-green backdrop for more colorful shrubs. A two-row planting of evergreen trees, at the back of your property and along one side, will serve as a travel lane for wildlife, bringing them within viewing distance of your family room, patio or terrace.

On a smaller lot, a single evergreen, surrounded by shrubs, can have protective value provided the lower branches are permitted to grow close to the ground. If the top and side shoots are removed from established evergreens, the trees will "bush out" and provide dense growth closer to the trunk, thus enhancing the protection.

DECIDUOUS TREES

Mature, deciduous trees with a large and varied insect population are attractive to orioles, vireos and warblers, chickadees, nuthatches, and woodpeckers.

TREES FOR THE SEED EATERS

Alders and birches bear in their numerous cones a supply of seeds that are sought by redpolls, pine siskins and goldfinches in winter.

The winged fruits of ashes and Manitoba maples are opened and their seeds are eaten by pine and evening grosbeaks.

Oaks and beeches are so important to woodpeckers and jays that the distribution of these trees determines the distribution of the birds, especially in winter.

TREES FOR THE FRUIT EATERS

Robins, cedar waxwings, bluebirds, cardinals and mockingbirds favour the flowering crabapples which furnish substantial amounts of nourishing food during winter and early spring. Plant a single tree near your patio, or plant a row next to evergreen trees near the border of your property.

Native hawthorns are similar to flowering crabapples in their fruiting habits and attractiveness to fruit-eating birds. In addition, their thorns protect nesting sites.

Cherry and plum trees offer excellent food during the summer months.

The chokecherry, black cherry and pin-

Plant sunflowers to attract bluejays, cardinals and grosbeaks.

Young tree sparrow on staghorn sumac.

Young rabbit at black currant bushes.

cherry produce abundant fruit in early fall, but most is gone by winter.

The native mountain-ash, *Sorbus americana,* with its white flower clusters, bright red berries and striking fall colours, is a tree of year-round beauty and usefulness to wildlife.

The fruits of the European mountain-ash, *S. aucuparia,* are eaten by robins and waxwings in late summer and early fall, but they are not palatable to most birds until after freezing and thawing, and they often remain on the tree all winter.

Russian olive, a spreading, shrubby tree 15 to 25 feet tall at maturity, bears white, pulpy fruit which remains on the branches over winter, providing excellent winter food for birds.

The Juneberry is a small tree which in early spring is garlanded in wreaths of snowy-white blooms and covered later with tiny apple-like fruits sought by flickers, orioles, cedar waxwings, veeries and robins.

SHRUBS FOR FRUIT EATERS

Many species of birds feed on the fruits of shrubs, and others depend on shrubbery for shelter and nesting sites. Mockingbirds, catbirds, thrashers and cardinals make numerous excursions to open, grassy places in search of food, but they require dense, thorny shrub thickets for protection.

The native viburnums, dogwoods and honeysuckles (and some exotic shrubs) are recommended as backyard plantings for birds because they offer food, shelter, summer flowering, autumn fruiting, autumn foliage colours, persistent fruit, and winter stem coloration.

The native high-bush cranberry, *Viburnum trilobum,* rich in the reds and yellows of autumn foliage, holds its berries through the winter. The fruit is unpalatable until it has been softened by alternate freezing and thawing. Cedar waxwings, in particular, relish the fruit of this species. Plant it in clumps or in single or double rows in low, moist, fertile land.

Do not plant the familiar snowball, *V. opulus,* if you are interested in attracting wildlife because it does not bear edible fruit, and because its leaves curl up and become unsightly when it is attacked by aphids.

Nannyberry, *V. lentago* develops on well-drained to moist, fertile soils into one of the taller viburnums, reaching heights of 20 to 30 feet. The blue-black fruit remains on the branches until late fall or early winter. Because it is tall and erect, rather than branching, plant the stock closer together (two feet apart) to form thickets next to evergreens on the edge of your property.

The arrowwood, *V. dentatum,* and hobblebush, *V. alnifolium,* are other viburnums which produce fruits sought by birds.

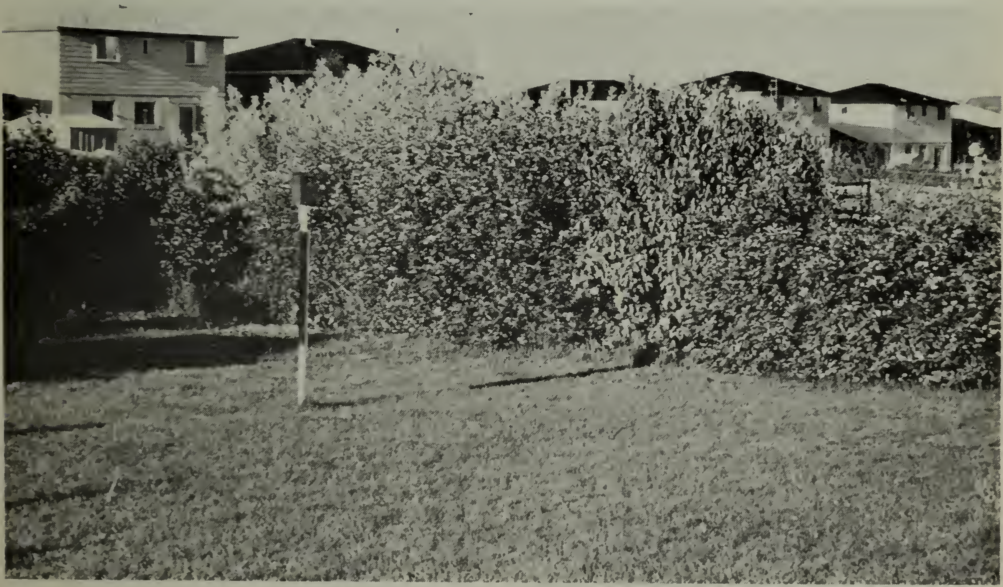
The native shrub dogwoods contribute little to the winter food supply as most of their fruits ripen in late summer or early fall. However, they offer excellent cover, roosting and nesting locations for birds if grown in clumps, thickets and hedgerows. The red-osier, *Cornus stolonifera;* gray, *C. racemosa;* and silky, *C. ammonum* — these dogwoods are frequently planted.

Honeysuckle flowers attract hummingbirds, and the red berries are important bird food. Most of the honeysuckle fruit ripens in summer and is gone before winter sets in. The upright branching growth, with stolons thickening the base, provide excellent summer cover for wildlife if planted in clumps or hedgerows.

Autumn olive, an exotic from Asia, is a spreading, branching shrub, 10 to 15 feet high. The silvery green leaves and trumpet-shaped yellow flowers make it attractive as a landscape plant. It will grow on a wide variety of soil types and drainage conditions but does best in light, loamy, well-drained soil. Its berries ripen in clusters and persist throughout the winter. Used alone or in thickets, this shrub attracts birds throughout the year.

Multiflora rose is a vigorous shrub with arching branches covered with thorns, but it needs a moderate climate to do well. In June, it is covered with a profusion of little, snowy-white flowers. If planted as a

Autumn olive hedgerow, leading to shrubby corner, attracts many species of birds.



Shrub hedgerow makes a living fence. Nesting box for tree swallows in grassy area.

living fence or clump, this rose provides excellent escape cover for birds at all times of the year. In the fall, it produces numerous red fruits (hips) which remain on the canes all winter.

Red and common elderberry are well adapted for mass planting and provide cover as well as food for birds. For best growth, these plants must be placed in a location which is moist throughout the growing season.

The sumacs, both staghorn and smooth, are impressively colorful in September. Their bright, red fruiting spikes provide seeds that are particularly valuable to birds because of their high fat content.

VINES

Because of its dense foliage and ability to climb and spread, wild grape offers unusually good cover for small birds. The grapes hang on the vine and serve as food into the late winter. Wild grape prefers open, sunny areas in wet to moist (but not poorly drained) soils. Coupled with support and planted two to three feet apart along the sunny side of a fence, wild grape will form a good visual barrier or an attractive arbor. A grape arbor should be an asset to any yard.

Virginia creeper is one of our best woody climbers. Not only is it ornamental, particularly when its leaves turn scarlet in the fall, but it also provides quantities of black berries, and it affords shelter and sites for nesting. It is useful for screening fences or covering your terrace, patio or arbor.

Bittersweet is a profuse, twining vine which will climb when supported or form a rambling ground cover. It blooms in June, has good glossy green foliage throughout the summer, and by early fall produces an abundant crop of brilliant scarlet and orange fruit which remains on the vine as food all winter. This vine adds cover to established hedges. It will do well in ordinary garden soil and endure partial shade.

GROUND COVER

Cover close to the ground is required by ground-feeding birds who search constantly for their living at this level.

Like most evergreens, junipers provide excellent food and cover during winter. (They are not recommended for planting near orchards as they are carriers of apple rust.) Bird viewing can be aided by planting juniper along the edge of your patio or terrace, or beneath your winter bird feeder in full view of your family room or kitchen window. Seeds that are dislodged from the feeder are not lost as they will fall among the juniper, providing food for juncos and sparrows.

Crown vetch, bearberry, partridgeberry and dwarf cornel are particularly effective as a ground cover for rock gardens or under trees, and they are a good food source for ground-feeding birds. All except crown vetch require acid soil and will grow best on the bare earth beneath conifers.

The ground growth of bittersweet is an effective shield in summer against predators and forms a travel lane for birds and small ground animals.

FOR SEED EATERS

Seed-eating birds will be attracted to a food patch near cover, along the inside edge of a small clump of shrubs or along a hedgerow. A small strip or corner will do. A number of commonly cultivated annual plants will attract goldfinches, siskins, juncos, other sparrows, and other seed eaters in general. Asters, cosmos, marigold, bachelor's buttons, sunflowers, forget-me-nots, portulaca, varieties of sorghum (Kafir, milo, sorgo), and zinnia are a few of the annuals that can be planted in small patches and left over winter.

The various millets are relished by nearly all seed-eating birds. Common, Japanese, and German millets, or foxtail, may be obtained from most seedsmen and should be planted in abundance. If millet is planted thickly where it can grow up through a horizontal latticework, it makes a valuable cover and feeding place for winter birds.

FOR FLOWER SEEKERS

Hummingbirds are attracted by cultivated blossoms and prefer those that are red, orange or purple in colour. Some flowers that are notably attractive to hummingbirds are daylilies, lilies, Canas, spiderflower, morning-glories, petunias, and honeysuckles. Jewel-weed and trumpet-creeper are also favourites.

Some of these practices seem to work overnight — almost! Suddenly, the avian opportunist is there, hopping amid good cover and free food. Coincidence or good backyard wildlife management? Judge for yourself.

Strong, agile sharp-tails must be handled carefully. The author shows how.

HOW TO TRAP SHARP-TAILED GROUSE

by Kirk J. Reed
Conservation Officer, Fort Frances District
(Photos by R. F. Chessell)

WHY trap the prairie sharp-tailed grouse? It is an excellent game bird but so restricted in its range in Ontario that attempts have been made to establish breeding populations in grouseless areas. The increasing demands for this bird in parts of Ontario and the United States have prompted us to develop methods of live-trapping.

The range of the prairie sharp-tailed grouse in Ontario extends from Fort Frances to Rainy River and includes a pocket in the Dryden vicinity. In addition, the northern Michigan population has spread into the Sault Ste. Marie area and Manitoulin Island.

For the most part, populations of this grouse are associated with a particular habitat of which the core is brushland. They are seldom found where the overhead canopy is too dense to permit an appreciable growth of grass.

There are three essential habitat requirements for prairie sharp-tailed grouse. In the first place, there must be a proper combination of shrubs and grasses for shelter and protection against predators. Second, they require open spaces with grass and shelter for dancing and nesting areas. Finally, they need trees and shrubs which provide both summer and winter food.

The management of the species in Fort Frances District has consisted mainly of setting seasons based on an annual inventory of the population. For nearly two decades, the locating and counting of individual dancing grounds has been carried out from year to year to get a reliable estimate of population fluctuations. Brood counts have been made to supplement this information.

The increasing demand by hunters for this game bird has made it imperative to increase its distribution and numbers in Ontario. Because of the availability of suitable habitat in other parts of Ontario, a program of live-trapping was regarded as feasible.

The first reported attempt to live-trap the prairie sharp-tail in Fort Frances District was made in 1957. The attempt failed because of a light snowfall and the wide distribution of food.

In 1959, a request from Maine's Department of Game and Inland Fisheries for sharp-tails prompted another live-trapping program in 1959 and 1960. This time, cannon-projected nets were used on dancing grounds. A lack of experience with this type of trap, and a lack of time to solve its problems, led to a limited success, and no birds were transplanted in either year.

Renewed attempts at trapping were made again in 1963. This time, wire traps with funnel-type entrances were placed at feeding stations on dancing grounds. Forty-one birds were trapped and transferred to Lindsay District.

In 1969-70, a live-trapping program was conducted to supply Grenville County with birds. Feeders were placed at trap locations which supported concentrations of sharp-tails, but they failed to entice the birds. Sharp-tails were eventually trapped in a field of abandoned oat stooks and on two dancing grounds, using walk-in traps with tapering funnel entrances, the type later adopted for live-trapping grouse. Thirty-one birds were eventually transferred.

Live-trapping attempts to this date indicated that sharp-tails could be successfully trapped on dancing grounds and in any area where a crop had been left to attract the birds to winter feeding.

In 1970-1, another program was undertaken to furnish Grenville County with more sharp-tails. It was discovered that they could be trapped along railway tracks where they gathered to feed on grain leaking from grain cars. Fifty-four birds were taken, the majority on railway locations.

It was now realized that sharp-tails could be trapped at railway track or lure-crop locations (where the birds were conditioned to ground feeding), or at dancing ground locations where they concentrated as part of the breeding ritual.

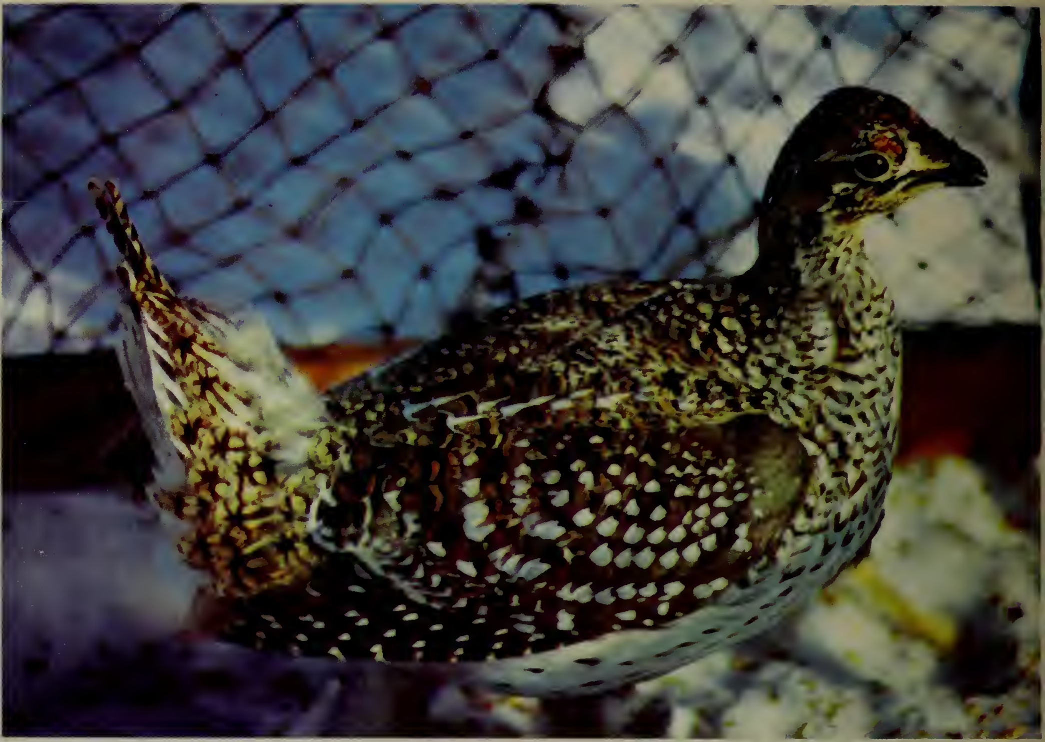
In 1972, one hundred and nine grouse were transferred to a suitable habitat northeast of Napanee. These birds had been live-trapped at two locations having abandoned oat stooks and at six railway track sites. An additional twelve birds were banded and released at the site of capture.

In 1973, an additional fifty birds were transferred to the Napanee area. Only railway track sites were used during this trapping season.

Fort Frances District complied with a request from the University of Guelph for sharp-tailed grouse to be used in experiments to determine the role of wild game birds in the transmission of Newcastle Disease. Twenty-one birds were supplied for this study. Another twelve birds were sexed, banded, and released at the site of capture.

In total, 285 prairie sharp-tailed grouse have been transferred from Fort Frances District for introduction elsewhere in the Province since the implementation of the live-trapping programs. The success of relocating these birds has been varied.

The results of the 1963 release in Victoria County (Lindsay District) were encouraging and prompted future transplanting. At the release site, the sharp-tails were placed in a snow-fence enclosure covered with wire netting. They were held for several days, and then part of the flock was released. The remainder were released a week later. For two weeks after that, the birds returned to the holding pen for food. This release was in mid-March, and a tape recorder,



"Pedioecetes phasianellus" is a hen-like bird with feathered legs and short, pointed tail. The adult weighs about two pounds. The male and female are similar in appearance except for the tail feathers. The upper wing surface is splashed with oval and round white dots. Below: The white under-tail coverts, prominently displayed during the sharp-tail mating ritual.

THE PRAIRIE SH

Photos by R. F. Chessell, Conse

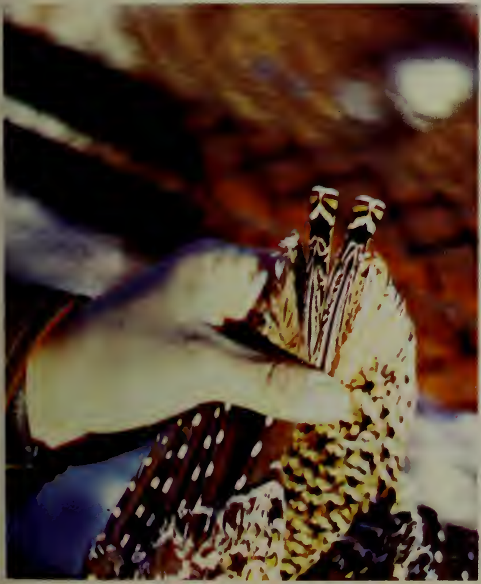
Below: Note orange-coloured bare space above the eye and brown V-shaped markings on the upper breast.

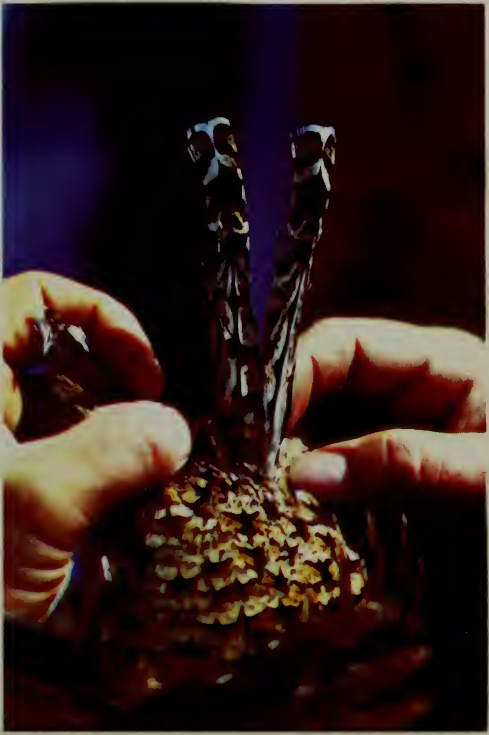
-TAILED GROUSE

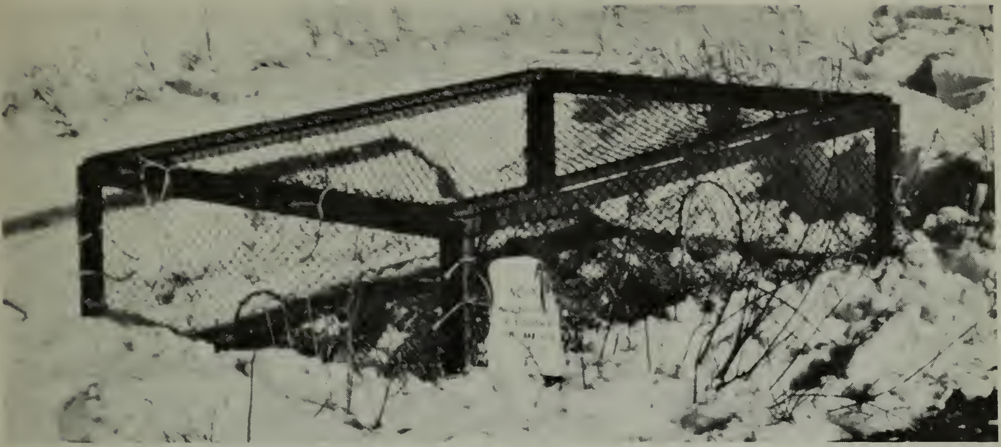
Officer, Fort Frances District

Below: *On the female of the prairie sharp-tailed grouse, note the cross-bars on the centre tail feathers.*

Below: Longitudinal lines run along each side of the main shaft of the centre tail feathers of the male bird.







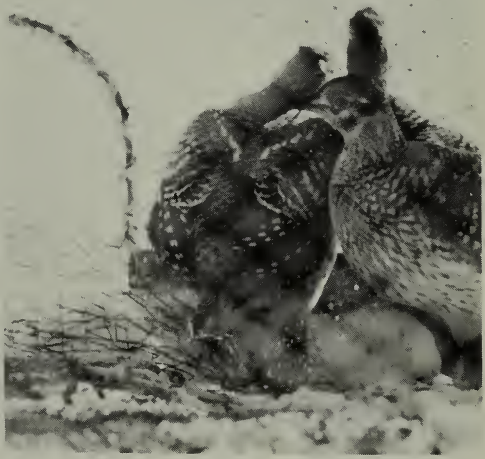
The trap, set and baited with oats and barley a few feet from railways tracks. The snow is cleared to ground and packed around the bottom edges.

Captured birds crush funnel-type entrance, shutting off their exit from trap.

with dancing ground calls and courtship noises, was played each morning at daybreak in an effort to hold the birds in the general area and stimulate sexual activity. This procedure was followed in subsequent releases.

By the end of May, the birds had established two dancing grounds in the release area. They were observed in the vicinity until 1966, and then there was no trace of them until observations were made some twelve miles to the northwest in Carde Township where habitat was more suitable. Here, the birds have been observed and shot by hunters since 1969. The estimated population is less than one hundred birds, confined to about four square miles, and limited by the available range.

The plantings in Grenville County in 1970 and 1971 resulted in no appreciable returns. Subsequent sightings involved only birds killed on highways. Special surveys, using experienced staff and good dogs, hoped to track down flocks, but produced no results. Of the fifty-four birds involved in the second transfer, twenty-six died, possibly of pneumonia, prior to release. The small number of birds successfully released in the two-year period was believed to be a limiting factor in the attempt to establish sharp-tails at this location.



In 1972 and 1973, the release site was Camden East Township in Lennox and Addington County, just northeast of Napanee. Sharptails (including at least one with a brood) were sighted at Point Petre in Prince Edward County during the summer of 1973. It would appear that, as in Lindsay District, sharp-tails have selected the most suitable habitat. Good results are expected from the Napanee introductions.

The knowledge gained by field staff in years of live-trapping sharp-tails has established a basis from which techniques may be refined and improved, thereby making possible a higher rate of success in future introductions.

BREAKING THE SNOW BARRIER

Report and Photos by John Macfie
Fish and Wildlife Supervisor, Parry Sound District

A CENTURY and more ago, lumbermen and settlers let deer into the southern precambrian shield, so to speak, by turning inhospitable tracts of virgin forest into gardens of succulent browse, but that is not the whole story.

In winters of excessive snowfall, they went still further and made paths for them. Not purposely, but as surely as if herding sheep to new pasture. The travel ways they made in the snow were the horse trails that in early winter radiated from hundreds of logging camps to cutting sites, the network of skidding trails that in turn snaked in all directions from skidways, and the plowed roads over which logs were sleigh-hauled to lakes and rivers in February and March. They were also the sleigh roads that led from the back field of each homestead to where the farmer cut his year's supply of fuel, and likely some cedar for fencing next summer's fallow.

Until thirty or forty years ago, the winter landscape was laced with roads and trails attractively garnished with the browse-laden tops of newly felled trees. In ordinary winters, life was easy for deer, and in severe ones, the losses of animals to starvation were not wide-spread enough to greatly affect a regional population.

Today, logging operations in the eastern deer range are small and few and far between, and logging goes on in summer as well as winter. Backwoods farms lie deserted, and fossil fuels heat town and country homes alike. So when deer are substantially hampered in their movements by snow, the help they need must be specially mustered.

The single prescription of browse alone will not prevent losses of deer in the crunch of a hard, snow-belt winter. To eat browse, they have to be able to move freely in their daily feeding forays. In shoulder-deep snow, browse only a few feet distant might as well be miles away.

Left — tracks prove use of new trail.

The implications of this situation were clearly underlined for deer managers doing range maintenance work in Parry Sound District's Loring deer yard in the snowy February of 1970. Starved deer were found yarded around patches of choice browse growing on sites previously treated for browse production.

This was an emergency. Wheeled skidding tractors and bulldozers were hired from logging contractors and put to work in the afflicted yards. The machines opened paths winding from coniferous cover through bushy tracts, and they knocked down saplings to provide more food. Where machines could not go, men on snowshoes felled browse-bearing maples across miles of existing deer trails.

The response was immediate and gratifying. Felled tree tops were heavily browsed the night after cutting, and bulldozer tread marks were soon obliterated by hoof marks. An aerial check revealed deer strung along the newly plowed roads like beads on a necklace.

The next two winters were even more severe, setting modern records with an accumulated, average District snow depth of 39 inches in early March, 1971, and with the winter of 1972 extending far into April.

Contingency plans were put in operation as soon as the severity of these winters became apparent, and as many as five tractors were grinding through Parry Sound deer yards at one time. It cost from 15 to 20 thousand dollars (or between a dollar and a dollar and a half per head) to help Parry Sound's estimated, wintering population of twelve to fifteen thousand deer through each of these winters.

On the evidence, it was money well spent.

Aerial view of deer on new trail.

A ten-month-old deer that starved to death in March, 1970. *It weighed barely more than* 50 *pounds. The previous November, it probably weighed* 80 *pounds or more.*

A bulldozer breaks road through 35-inch snow to lead deer to browse.

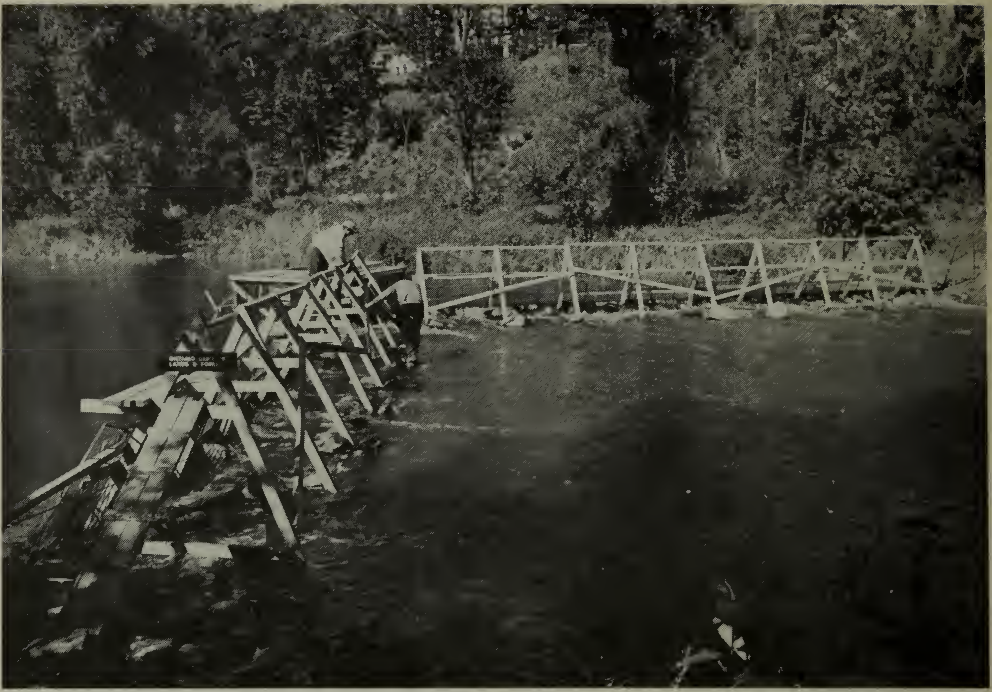
After the snow melted, surveys revealed little sign of losses due to malnutrition. The hunters' average harvest of deer has been rising fractionally from a low of about 3,400 animals in 1970 — a gratifying trend in a period of hard winters.

The technique isn't quite as simple as hiring a fleet of tractors and pointing them in the direction of a deer yard. Remotely situated yards and those in rough terrain pose access and servicing problems. Trunk roads and bridges are necessary, and these as a rule exist only in recently logged regions. In very deep snow, the range of machines that will work efficiently is narrowed to a few specialized bulldozers. The common snowmoblie is limited in value under any circumstances. Snow that bogs down deer bogs down snowmobiles.

Machine work is impractical in small yards of a few dozen deer — that is where axemen on snowshoes are most effective. And tractors must tread lightly, if at all, on patented land, for the tangle they leave is unsightly and may conflict with other objectives of the forest's owner.

Fickle weather makes planning precarious. In mid-January of 1973, for example, when the snow depth inched beyond the previous modern record for the date, Parry Sound District pushed the button to launch the biggest deer relief operation yet. Then in a matter of days, an unseasonable thaw reduced the snow cover to a foot of hard stuff that deer wandered freely over for the remainder of the winter.

The white-tailed deer is fundamentally not a snow-belt animal, and tractors cannot roll back the snow-belt. What they can do is minimize losses of deer in the severest winters and flatten out the long-term decline in their numbers.



The weir in August when the Credit was a tranquil stream.

Is it a poacher? No, it's an author. Al Wainio nets coho outside box trap.

Photos by Bruce Colvin.

THE DIARY OF A SALMON WEIR

Text and Photos by A. A. Wainio
District Biologist, Maple District

IN 1969, the old Department of Lands and Forests began stocking coho salmon smolt in the Credit River on an experimental basis to determine how well these fish would survive in Lake Ontario. Little did fisheries managers realize the frustrations they would encounter in monitoring the return of the salmon.

To capture the adult salmon returning to spawn in the fall of 1971, a weir was erected about two miles upstream from the mouth of the Credit River. The site selected was the centre of a golf course, and fortunately for the operation of the weir, the golf course superintendent proved very co-operative. Later, there were enough problems from other sources.

A weir is basically a fence, or an enclosure, across a river for the taking of fish. Our weir consisted of two wings of A-frames, with iron grates on the upstream side, and a box trap in the centre. The wings slanted to the shore at an angle of about 45 degrees (see photograph).

Five biology students, working in shifts, were responsible for counting the salmon trapped at the weir. All fish were measured and examined for lamprey marks. Approximately every tenth fish was weighed and sexed.

The maintenance of the weir proved to be more onerous than expected. Weeds and leaves floating downstream clogged up the grates very readily, building up the water pressure on the structure. To reduce the water pressure, the students were constantly cleaning the grates. Cleaning continued all day and most of the night.

The only shelter from the rain and wind was a two-bunk trailer which was handy to the weir but too cold for comfort in the late fall.

In addition to the methodical listing of all biological data on special forms, the students were also asked to record their work problems in a diary. It became an outlet for their feelings.

Please turn the page and read on.

The log that nearly wrecked the weir. (Camera held by excited student.)

The Diary of a Salmon Weir, 1971

*Extracts from Diary of Graduate Biology Students: Don Price, Jim Rowsell, Jerry Smitka and Bob Hester (**Comments by Al Wainio)*

August 31	Credit River bed cleared of large rocks to permit the trap and A-frames to be erected on as level a surface as possible.
September 2	Trap erected in river and secured with cables. Rocks placed around upstream-end.
September 8	South wing erected. Catwalks and grates installed on both wings.
September 10	Heavy weed flow downstream. Water level rose about six inches in one hour.
	***Portent of things to come. Grates were clogged by large amounts of weeds floating downstream.*
September 13	First coho entered trap at 12:30 p.m.
September 14	At 8:30 a.m., grounds superintendent came to warn of upstream dredgings. Great volumes of weeds came downstream from dredgings. We removed all grates to release water. Five lamprey were seen.
September 16	Nine fish in trap. Trailer installed.
September 18	Awake at 6:59 a.m. Five fish in trap. Cleared weir of weeds and excess fishermen. Field day today for golfers. Fishermen and other visitors seem to be flogging around the weir during the day and night. It seems to be a popular spot.
September 19	I feel not unlike a host at one of the booths at the CNE or Expo. All the visiting fishermen, golfers and kids are more than a slight pain in the . . . At 5:30 p.m., two canoes and two kayaks ran into the weir on the upstream side.
September 25	Bob Olivier from Georgetown Community TV visited to see the operation. Wants to do a film next Wednesday.
September 27	The willow trees around the trailer are beginning to shed their leaves. (The beginning of the end?) By-passed by two canoeists at 11:45 a.m.
September 29	CHCH-TV newsmen came during afternoon . . . The amount of *Cladophora* (a species of algae) coming downstream is very great and seems to be increasing.
September 30	During the afternoon, I had to fight with the biggest, most horrible monster of all time — *Cladophora* alias the blob.
October 2	All I have today is "One H — 1 of a lot of08!!?* weeds!"
October 3	Vast amount of crud, crap and algae coming downstream. Took until 9:00 a.m. to bring the water level under control . . . Some fishermen who visited the weir reported a large number of fish jumping under the QEW bridge.
	***Cleaning operations commenced at 7:00 a.m. What an exhilarating way to start a morning !*
October 4	Still vast amounts of weed coming downstream. My waders leak. My feet and legs are freezing, and I have a cold. Arrr rr rrgh!!
	***So what else is new ?*
October 7	Damn cold and windy today. Richard and Alex showed up at 3:00 p.m.

You must clean the grates or your weir becomes a 08 ! ! ? * *dam.*

They brought a generator, a new rake (Hurrah!) and two new pairs of waders (Hurrah, Hurrah, Yippee, Zowie!!!!!)

October 10 — I've got fish in the trap — at least five — I'm not sure because I can't see — all in the X??!*!! dishwater out there. Almost ¾ hours of cleaning gives me a X??*! drop of water. My back aches like hell and I'm tired as &!?*. I think I'm going to cry.

***Frantic scrubbing of the grates sometimes lowered the water only an inch — very encouraging.*

October 13 — Water flow extremely heavy. Unbelievably heavy amount of leaves grass and logs (Yes, logs!) coming down . . . Jerry and I were in the water cleaning grates when two very bright, almost brilliant, nearly blinding lightning flashes lit our way as we ran like hell to the trailer.

***Streaking by lightning.*

October 14 — To be sung Stomping Tom (Johnny Cash) style . . .

I keep a close watch on this weir of mine
I keep my eyes wide open all the time
I keep the grates real clean and never fear
Because it's here
I walk the weir

October 15 — Mother Hubbard has struck again. The trap is as bare as a baby's behind.

***Poachers ?*

October 16 — We are out of propane gas. Arrr rr rrgh — can't even burn lunch let alone get warm.

October 17 — Argos lost to Montreal 28-7. Leafs tied Bruins 2-2 in Boston — a real come-from-behind effort. . . . Found the floral emblem of British Columbia in the trap.

** *Just a commemorative medallion — not the real flower.*

October 18 Our friendly American coot is still patrolling the river looking for *Cladophora.* guerrillas.

** *An American coot adopted the weir as its home for almost a month. It became the students' mascot.*

October 19 Rumour from Erindale College — Poachers standing at Base Line bridge, netting salmon for roe, and then discarding the fish.

October 22 Coho are coho and trout are trout, and never them Wainio will eat — by Rugged Kipper (yom) . . . Thought for the night: "If the coho salmon have not yet been paid for, they were planted on Credit."

October 24 Walking the catwalk tonight gives me the same feeling that one would have had walking the bridge of the Titanic in 1912 . . . The grates clog up as fast as we clean them.

** *The slaves are getting restless.*

October 25 We removed another 21 fish from the trap and released them upstream . . . Biolabourer commences biolabouring. I shall try not to biolabour the point, but the water is at heights of such magnitude that we (Jerry Lewis, Spitball and myself) quite frankly fear for the bioweir.

October 26 South wing shifted downstream considerably. Severe undercutting in 40% of grates. Large flow around south wing along riverbank . . . Clyde Coot has been blissfully eating weeds all day while we fought off disaster.

October 29 Allan wants us to list all of our suggestions for improvement and any actual improvements made.

October 31 Jerry wants an automatic fish counter and an automatic grate cleaner . . . Ship in 1,000 very hungry American coot to eat *Cladophora.*

** *That's not exactly what I had in mind.*

November 2 No sign of Clyde Coot today. I guess he's gone south for his winter vacation in Dixie, doodah, doodah.

** *The crew had fallen in love with the coot and sorely missed it.*

November 3 The moonlight is still quite adequate for grate cleaning and so the generator was not used.

November 7 First snow hits weir. Blizzard in progress at 4:00 a.m.

November 8 These trailers were definitely not made to be lived in during the cooler weather . . . Wednesday promises to be interesting. We are finally going to be able to release two months of weir-watching tension by busting up the goddamned thing.

** *They probably would have if I hadn't been there.*

November 9 No propane left. Temperature inside trailer 32°F. Decide to turn on Coleman lantern. Temperature in trailer up to a balmy 54°F by 12:30 noon . . . The last shift began. The snow and rain keep falling and it looks like another long dull soggy shift.

** *Gluttons for punishment !*

November 10 The weir comes down today.

RIGHT — Late in the fall, getting rid of the "Blob" was a cold job.